

Flow injection system for determination of sulfaguanidine in pharmaceuticals samples

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Introdução

The sulfaguanidine (SG) are a kind of antibiotic used on veterinary medicaments. As collateral effects when in high concentrations causes kidney problems¹. The SG concentration in food should be lesser than 0.1 mg Kg⁻¹. In this work we proposes a FIA method with the N-naftil etilenodiamine as chromogenic reagent for SG determination on samples of pharmaceuticals and foods. All parameters of FIA system were optimized full factorial plan followed by Doehlert design².

Resultados e Discussão

The Figure 1 has shown the manifold of FIA system to sulfaguanidine determination

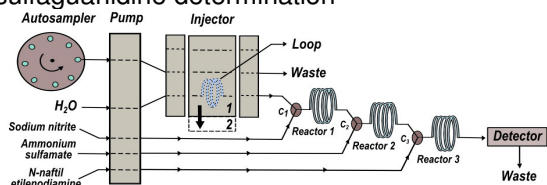


Figure 1. Manifold of flow system for sulfaguanidine determination.

The optimized values for reagents (Fig. 2) were: 0.11% (w/v) (sodium nitrite), 2.0% (w/v) (ammonium sulfamate) and 0.28% (w/v) (N-naftil etilenodiamine). The better value for loop sample was 325 cm and for reactor 2 was 350 cm. All studied concomitants (lactic acid, albumin, casein, sulfur, neomycin, kaolin, starch, CaCO₃, cellulose, lactose, penicillin G potassium, streptomycin, ampicillin, norfloxacin, flunixin, penicillin G procaine and trimethoprim) presented no significant interferences.

The method was applied on samples of pharmaceuticals, egg and liver and the results are in agreement with those obtained with HPLC (Table 1) confirming the accuracy of method. The detection and quantifications limits were 12 and 42 µg L⁻¹ respectively. It was possible to do 33 readings per minute.

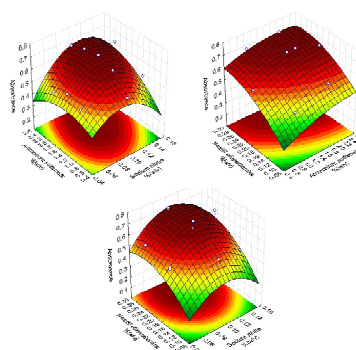


Figure 2. Response surfaces for reagents.

Tabela 1. Application and validation of the method value±SD; ^a(g Kg⁻¹); ^b(µg Kg⁻¹).

Samples	FIA method	HPLC	Error(%)
pharmaceutical ¹	^a 21.52±0.13	21.76±0.08	-1.11
pharmaceutical ²	^a 21.31±0.24	21.67±0.09	-1.66
Egg	^b 62.54±0.54	61.74±0.06	1.30
Liver	^b 78.6±0.32	80.4±0.05	-2.04

Conclusões

We proposed a method to determine Sulfaguanidine that was adequate to application on real samples (pharmaceuticals and foods), and presented high analytical frequency, good detection and quantification limits. The method was compared with HPLC and the results are in agreement.

Agradecimentos

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